

Marked-up Version of Prior Pending Claims

1. (amended) A triggerable location-reporting apparatus for use in an environment including: a source of GPS signals; a source of a trigger signal; a cellular base station connected through a network to a gateway; the cellular base station being configured to expect a Reverse Control Channel signal including a Mobile Identification Number and an Electronic Serial Number, the triggerable location-reporting apparatus comprising

[a trigger signal;]

a GPS receiver responsive to the GPS signals for producing GPS data when enabled [processor coupled to the trigger signal];

[a position signal carrying position information generated by the GPS processor in response to the trigger signal;]

a [telemetry] cellular network transmitter coupled to the [position signal] GPS receiver for formatting and transmitting, when enabled, a Reverse Control Channel signal including a formatted GPS data in the place normally occupied by the Electronic Serial Number and a Mobile Identification Number that will cause the cellular base station to send a Registration Notification Invoke signal including the formatted GPS data to the gateway;

[a telemetry transmit signal transmitted by the telemetry transmitter, the telemetry transmit signal carrying the position information.]

a trigger signal receiver responsive to the trigger signal for producing an enable signal;

an enable controller coupled to the GPS receiver, the cellular network transmitter, and the trigger signal receiver;

the enable controller being configured to enable the GPS receiver and the cellular network transmitter upon receipt of the enable signal from the trigger signal receiver; and

the enable controller being configured to disable the GPS receiver and the cellular network transmitter.

2. (amended) The triggerable location-reporting apparatus of claim 1 further comprising
a power supply connection;
a first switchable power signal coupled to the GPS [processor] receiver and the
power supply connection;
a second switchable power signal coupled to the [telemetry] cellular network
transmitter and the power supply connection.
3. (amended) The triggerable location-reporting apparatus of claim 2 [further
comprising] where
[a] the enable controller is configured to switch on and off the first switchable
power signal and the second switchable power signal.
4. The triggerable location-reporting apparatus of claim 2 further comprising
a power supply coupled to the power supply connection.
5. The triggerable location-reporting apparatus of claim 4 wherein
the power supply comprises a battery.
6. The triggerable location-reporting apparatus of claim 4 wherein
the power supply comprises a solar cell.
7. The triggerable location-reporting apparatus of claim 4 wherein
the power supply comprises a vehicle battery.
8. (amended) The triggerable location-reporting apparatus of claim 1 wherein
the page receiver, GPS [processor] receiver and telemetry transmitter are housed
in a housing.
9. The triggerable location-reporting apparatus of claim 8 wherein
the housing is configured to be installed in a vehicle.

10. The triggerable location-reporting apparatus of claim 8 wherein the housing comprises at least a portion of an article of clothing.
11. The triggerable location-reporting apparatus of claim 8 wherein the housing is configured to be installed in an object to be tracked.
12. (cancelled) The triggerable location-reporting apparatus of claim 1 wherein the telemetry transmitter comprises a cellular telemetry transmitter.
13. (cancelled) The triggerable location-reporting apparatus of claim 1 wherein the telemetry transmitter comprises a satellite telemetry transmitter.
14. (amended) The triggerable location-reporting apparatus of claim 1 wherein the [telemetry] cellular network transmitter comprises a cellular telephone.
15. (cancelled) The triggerable location-reporting apparatus of claim 1 wherein the telemetry transmitter comprises a radio-telephone.
16. (amended) The triggerable location-reporting apparatus of claim 1 wherein the trigger signal [source] comprises [a page receiver; the trigger signal activating when the page receiver receives] a page.
17. (amended) The triggerable location-reporting apparatus of claim 1 wherein the source of the trigger signal [source] comprises an alarm.
18. (amended) The triggerable location-reporting apparatus of claim 1 wherein the source of the trigger signal [source] comprises a remote control.

19. (amended) A method for reporting a location for an object in an environment including: a source of GPS signals; a source of a page including a command; a cellular base station connected through a network to a gateway; the cellular base station being configured to expect a Reverse Control Channel signal including a Mobile Identification Number and an Electronic Serial Number, the method comprising

receiving a page;

enabling, in response to the page, a GPS receiver responsive to the GPS signals to produce GPS data;

[determining, in response to the page, the location of the object using GPS signals;]

enabling, in response to the page, a cellular network transmitter to format and transmit a Reverse Control Channel signal including a formatted GPS data in the place normally occupied by the Electronic Serial Number and a Mobile Identification Number that will cause the cellular base station to send a Registration Notification Invoke signal including the formatted GPS data to the gateway; and [transmitting the location of the object via telemetry.]
disabling the GPS receiver and the cellular network transmitter.

20. (amended) The method of claim 19 [further comprising]

where enabling comprises applying power to a GPS receiver and a cellular [telemetry] network transmitter upon receipt of the page; and

where disabling comprises disconnecting power from the GPS receiver and the cellular [telemetry] network transmitter upon transmission of the location of the object.

21. The method of claim 19 further comprising

receiving the transmitted location at a gateway;

communicating the transmitted location to a service provider.

22. (amended) The method of claim 19 wherein transmitting comprises transmitting the location of the object via the cellular [telemetry] network.
23. (cancelled) The method of claim 19 wherein transmitting comprises transmitting the location of the object via satellite telemetry.
24. The method of claim 19 further comprising determining if the object is moving; and continuing to transmit the location of the object while it is moving.
25. The method of claim 19 further comprising storing the location of the object; and transmitting the stored location of the object if the ability to determine location ceases.
26. (amended) A triggerable location-reporting apparatus comprising a location-signal generating device configured to produce a location signal when enabled;
a telemetry transmitter coupled to the location-signal generating device configured to transmit the location signal when enabled;
[.]
a enable controller configured to enable the location-signal generating device and the telemetry transmitter when it receives a trigger signal and to disable the location-signal generating device and the telemetry transmitter after the telemetry transmitter transmits the location signal.
27. The triggerable location-reporting apparatus of claim 26 wherein the location-signal generating device comprises a GPS processor.
28. (amended) The triggerable location-reporting apparatus of claim 27 [further

comprising] where the controller comprises

a page receiver which produces an enable signal when it receives a page[;

a page signal generated by the page receiver and coupled to the GPS processor].

29. (amended) The triggerable location-reporting apparatus of claim 28 wherein the GPS processor generates the location signal in response to the [page] enable signal.

30. The triggerable location-reporting apparatus of claim 28 wherein power is not applied to the GPS processor until the apparatus receives a page.

31. The triggerable location-reporting apparatus of claim 26 wherein power is not applied to the telemetry transmitter until the apparatus receives a page.

32. The triggerable location-reporting apparatus of claim 26 wherein the telemetry transmitter comprises a cellular telemetry transmitter.

33. The triggerable location-reporting apparatus of claim 26 wherein the telemetry transmitter comprises a satellite telemetry transmitter.

REMARKS

Applicant's remarks below are preceded by quotations of the related comments of the examiner, in small, bold-face type.

2. Claims 1, 16, 18, 19, 22, 23 and 26-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Snyder (U.S. 5,588,038).

As to claims 1, 16, 18 and 26-31, Snyder teaches a remote triggerable location-reporting apparatus (figures 1 and 4, column 6, lines 11-29) comprising;

- a trigger signal, generated by transceiver (figure 2, (202)) and tripping circuit to (208),

- and a GPS processor with homing transmitter (214) coupled to the trigger circuit (208) to initiate and transmit position information in response to the trigger (power) signal (column 6, lines 53-64).

As to claim 19, Snyder as applied in claim 19 above differs from claim 20 in that claim 19 does not teach disconnecting power from the GPS receiver and the cellular telemetry transmitter upon transmission of the location of the object. However, since Snyder teaches that the pager transceiver can be used to send signals that are responsive to sensing various conditions and that request an action by the owner (column 10, line 35 to column 11, line 26), it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the remote control capability of Snyder to signal the triggerable apparatus to disconnect any external device as required to save VDC source battery power.

As to claims 22 and 23, with reference to claim 19, Snyder teaches the wireless transmitter can be utilize a variety of wireless networks including ground or satellite supported cellular telephone or directly over the air (figures 1, 4 and 5, column 10, lines 48-63).

As to claims 32 and 33, with reference to claim 26, Snyder teaches the wireless transmitter can be utilize a variety of wireless networks including ground or satellite supported cellular telephone or directly over the air (figures 1, 4 and 5, column 10, lines 48-63).

4. Claims 2-9, 12-15 and 17, are rejected under 35 U.S.C. 103(a) as being unpatentable over Snyder (5,588,038).

As to claims 2 and 17, Snyder teaches a remotely triggered power (208) switch and transceiver (202) are powered by a DC source and used to activate selected systems including ignition interrupt, alarm system or homing transmitter (i.e. GPS) (figures 1 and 2). Snyder does not teach a second switchable power signal for sub level power control to the transmitter of the GPS unit; however, since Snyder teaches the power switch can be used to switch the above or other miscellaneous devices and the pager transceiver can be used to receive and transmit signals that are responsive to sensing various conditions as requested by the owner (column 10, lines 63-67), it would have been obvious to one skilled in the art at the

time of the invention to expand the single feature power control method of Snyder to selectively control any specific or other areas of the system as required for reasons of power conservation.

As to claim 3, Snyder teaches the transceiver (202) provides control of the tripping circuit (208) (figures 2 and 4) (column 6, lines 11-30).

As to claims 4-7, Snyder teaches a power supply in the form of an automobile battery (206) with connection to a back-up source such as a rechargeable battery, alternator or obviously any 12 volt DC source practical to the application (column 6, lines 30-45).

As to claim 8, Snyder teaches the pager transceiver can have the GPS receiver built-in (column 11, lines 1-19).

As to claim 9, Snyder teaches that the system is applicable to many applications on a variety of vehicles and/or remote locations (column 10, lines 13-20).

As to claims 12-15, Snyder teaches the wireless transmitter can be utilize a variety of wireless networks including ground or satellite supported cellular telephone or directly over the air (figures 1, 4 and 5, column 10, lines 48-63).

Applicant's invention is a triggerable location-reporting apparatus and method that provides the ability to report its position in response to a trigger signal using a cellular Reverse Control Channel signal specially modified to accomplish this purpose. The triggerable location-reporting apparatus also includes a controller that only enables portions of its circuitry when it receives the trigger signal and subsequently disables those portions of the circuitry.

The fact that the triggerable location-reporting apparatus disables portions of the circuitry is very important because, in a normal cellular environment where the controller is attached to a moving vehicle, the cellular network transmitter would transmit a Reverse Control Channel signal every time it entered the environment of a new cellular base station, incurring a cellular system cost for each transmission. The invention avoids this cost by disabling the cellular network transmitter. This aspect of the invention makes it commercially viable as a theft prevention or recovery device or as a means of tracking and controlling virtually anything.

Further, in one embodiment, recited in amended claims 3 and 20, the invention disables the cellular network transmitter and the GPS receiver by removing their power. This aspect illustrates another advantage of the invention, that it minimizes the consumption of power when it is not in use. This allows the controller to be powered by its own battery and allows it to be concealed, which is very important in some circumstances, such as in vehicle theft prevention.

Applicant has amended claims 1 and 19 to indicate that the controller and method operate in an environment including a source of GPS signals (e.g., item 20 in Fig. 1), a source of a trigger signal (e.g., item 14 in Fig. 1, items 122 and 132 in Fig. 12, item 60 in Fig. 14, and item 166 in Fig. 15), a cellular base station (e.g., item 24 in Fig. 1) connected through a network (items 25 and 26 in Fig. 1) to a gateway (item 28 in Fig. 1). In claim 19, the trigger signal is specified to be a page. The cellular base station is configured to expect Reverse Control Channel signals incorporating a Mobile Identification Number and an Electronic Serial Number. See page 7, line 18 through page 8, line 3 of the specification.

Applicant has further amended claims 1 and 19 to require a GPS receiver (item 48 in Figs. 2 and 14) responsive to the GPS signals for producing GPS data when enabled. Applicant has amended claim 19 to require enabling, in response to the page, a GPS receiver responsive to the GPS signals to produce GPS data. Applicant does not consider this amendment a narrowing amendment under *Festo* because original claims 1 and 19 clearly contemplated the use of GPS signals to produce GPS data when enabled.

Applicant has further amended claims 1 and 19 to require a cellular network transmitter (e.g., item 58 in Figs. 2 and 14) that formats and transmits, when enabled, a Reverse Control Channel signal including a formatted GPS data in the place normally occupied by the Electronic

Serial Number and a Mobile Identification Number that will cause the cellular base station to send a Registration Notification Invoke signal including the formatted GPS data to the gateway. See page 8, line 16 through page 9, line 14 of the specification.

Applicant has further amended claims 1 and 19 to require a trigger signal receiver (e.g., item 34 in Figs. 2 and 14) for producing an enable signal (e.g., item 46 in Figs. 2 and 14).

Applicant has further amended claim 1 to require a trigger signal controller (e.g., item 142 in Fig. 14) coupled to the trigger signal receiver. Applicant does not consider this amendment a narrowing amendment under *Festo* because original claim 1 clearly contemplated this concept.

Applicant has further amended claims 1, 19 and 26 to require an enable controller (e.g., item 36 in Figs. 2 and 14) coupled to the GPS receiver, the cellular network transmitter, and the trigger signal receiver. The enable controller is configured to enable the GPS receiver (location-signal generating device in claim 26) and the cellular network transmitter (telemetry transmitter in claim 26) upon receipt of the enable signal from the trigger signal receiver (upon being enabled in claim 26). The enable controller is configured to disable the GPS receiver and the cellular network transmitter. Page 12, line 26 through page 14, line 5.

Applicant has made conforming amendments to claims 2, 3, 8, 14, 16, 17, 18, 20, 22, 28, and 29. Applicant does not consider any of these amendments to be narrowing amendments under *Festo*. Further, these amendments were not made to avoid the prior art but to conform to the amendments made to claims 1, 7 and 13.

None of the references cited by the examiner teach or suggest the cellular network transmitter required by amended claims 1 and 19. In particular none of the references cited by

the examiner teach or suggest a cellular network transmitter that transmits a Reverse Control Channel signal including formatted GPS data in the place normally occupied by the Electronic Serial Number and a Mobile Identification Number that will cause the cellular base station to send a Registration Notification Invoke signal including the formatted GPS data to the gateway. Consequently, amended claims 1 and 19 are neither anticipated nor obvious in light of the references cited by the examiner.

Further, none of the references cited by the examiner teach or suggest the enable controller required by claims 1 and 26 or the enabling and disabling steps required by claim 13. In particular, none of the references cited by the examiner teach or suggest a controller that enables the GPS receiver, which then produces GPS data, and the cellular network transmitter, which then transmits the Reverse Control Channel signal, upon receipt of the enable signal from the trigger signal receiver, and then disables the GPS receiver and cellular network transmitter.

Snyder discloses a system that receives a page or other signal causing a tripping circuit to enable a homing transmitter. The tripping circuit can only be disabled by actuating the disable switch 308, illustrated in Figs. 3A and 3B, or by receipt of a special reset command through the pager receiver, col. 9, lines 43-60. Snyder does not teach or suggest an enable controller that enables and then disables the GPS receiver and the cellular network transmitter, as required by amended claims 1, 19, and 26. Thus, claims 1, 19 and 26 are neither anticipated nor obvious in view of Snyder. Consequently, claims 1, 19 and 26 are patentable.

The remaining pending claims depend from one of claims 1, 19, and 26 and are patentable for at least the same reasons described above.

5. Claims 10, 11, 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snyder with a view to Ross (U.S. 5,673,305).

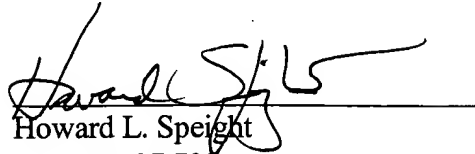
As to claims 10, 11 and 24, with reference to claims 1, 8 and 19, Snyder teaches that the triggerable location reporting apparatus is applicable to vehicles or remote locations but does not teach that the system housing is adapted as at least a portion of an article of clothing or configured to be installed in an object to be tracked. Ross teaches apparatus for tracking and reporting the location mobile articles including persons where the device is specially configured to strap to a parolees under "house arrest" (column 6, line 44 to column 7, line 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize the application of Ross in the system of Snyder as another practical application of the triggerable location reporting apparatus.

As to claim 21, with reference to claim 19, Snyder teaches the two way communications are through a variety of wireless methods including satellite (typical gateway) (figures 4 and 5) and the information is provided to the requestor but does not teach the location information is transferred to a service provider. Ross teaches the location information is provided through a communications apparatus (figure 1, (22)) and a central station routes the information to various service providers (34). It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize the further application of the location information as taught by Ross in the system of Snyder.

Ross does not teach or suggest the enable controller required by amended claims 1 and 26 or the enable and disable steps required by amended claim 19. The same is true of Snyder, as discussed above. Consequently, the combination of Snyder and Ross would not include that element. Thus, amended claims 1, 19 and 26 would not have been obvious to a person of ordinary skill at the time this application was filed over Snyder in view of Ross, and are therefore patentable. Claims 10, 11, 21 and 24 depend from claims 1 and 19, respectively, and are patentable over Snyder in view of Ross for at least the same reasons.

Applicant contends that all of the claims are now in condition for allowance, which action is requested. Applicant does not believe any fees are necessary with this submission. Should any fees be required, Applicant requests that the fees be debited from deposit account number 02-0383.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Howard L. Speight", is written over a horizontal line.

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